Low Interest Rates: Broad Market Implications for Insurance Companies

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November 5, 2020

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Agenda

- Historic Interest Rates
- Implications for Insurance Companies
- Reinvestment Risk
- Asset Allocation
- Asset-Liability Management

Long-Term Trend – 10 Year US Treasury (1990 – Present)…

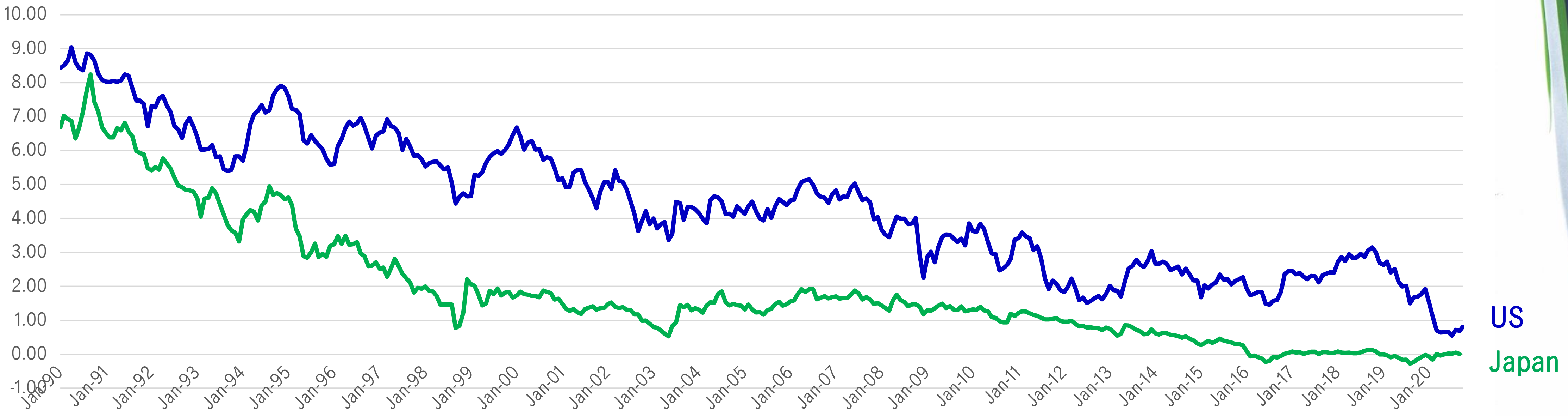
…or Same Story, Different Year

"Are lower interest rates here to stay?"
Record of the SOA, 1993 Vol. 19 No. 3
10yr UST @ 6%

"Does that mean the waiting game for higher rates is finally over?"
The Actuary, Feb/Mar 16, Vol. 13, Issue 1
10yr UST @ 3%

10yr UST @ 0.8%

Long-Term Global Trend…
…10 Year Government Yields: US and Japan (1990 – Present)



- The US is not alone with low rates – at least the US rates are positive. Many countries have negative yields.

Lower for Longer (...or Much Lower for Even Longer)

- Good news...lower rates = higher market values for certain asset classes
  - May not matter for long-term, buy & hold fixed income investors...as long as the liability cash flows don't change

- Bad news...Lower rates = reinvestment risk
  - Many life insurance companies have long-term liabilities with recurring premiums, as well as shorter asset maturities and asset income to be reinvested
  - If investment yields cannot maintain interest rate commitments assumed in product pricing, then realized margins will be compressed

Reinvestment Risk

- Risk varies with underlying liabilities
  - Short-duration, single-premium products
    - ➢ Limited reinvestment risk if assets and liabilities are well-aligned…
    - ➢ …but single-premium means only one chance to invest
  - Long-duration, recurring premium products
    - ➢ Significant reinvestment risk if liabilities are much longer than assets

Reinvestment Risk – Potential Solutions

- Asset Allocation
  - Aligning asset/liability cash flows or shifting to a more aggressive asset mix (relative to assumptions used in pricing) can lessen the risk
- Asset-Liability Management
  - Close remaining duration gaps and manage going-forward
- Product Mix & Product Design
  - A well-diversified product mix can help mitigate the risk

Asset Allocation

- There's no "secret sauce", although some companies have greater scale
  - Investment opportunities span a wide range... ...but each has benefits & costs

- US Treasury
- Public Corporate
- Private Debt
- Commercial Mortgages
- Structured Finance
- Alternative Assets

- Yield
- Risk
- Capital
- Expenses
- Supply
- Ratings

Opportunities, benefits, and costs are more varied in practice

Asset-Liability Management

- Objective: minimize interest rate risk by reducing asset and liability duration and partial-duration gaps

Tools	Considerations
• Cash assets • Derivatives • Product Features	• How stable are asset and liability cash flows (e.g., embedded optionality)? • Earnings & solvency volatility • Risk appetite

Conclusion

- If I had $100 for every time someone said rates cannot go lower
- Low rates may be here for a while, or they may not…it's hard to predict in highly-efficient markets, so often better to be agnostic
- Insurance companies should monitor and manage interest rate risk on both sides of the balance sheet
  - Maximize the risk-adjusted yield on new investments
  - Risk appetites may need to be reviewed in order to generate higher yields
  - Product features also need to be reviewed

Questions?

DATE

MassMutual

Impact of Low Interest Rates on Life Product Development

What A Change Over the Last Couple of Years!
About a 240 bps drop in 10 Year Treasuries in the last 2 years!

Source:https://www.macrotrends.net/2016/10-year-treasury-bond-rate-yield-chart'>10 Year Treasury Rate

This Drop Has Had a Significant Impact on New Products
Guaranteed UL Example

Age 55

$1 million death benefit

Scenario	Premium	Accumulated Premiums at Age		
		80	**90**	**100**
4.5% level	$12,000	$558,848	$1,021,968	$1,741,179

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2.5% level	**$19,000**	**$665,222**	**$1,069,727**	**$1,587,527**

Range of Prices for a Male 55, Best Class, $1 million face is about $12,000 - $20,000

Low Interest Rates and Section 7702

Impact on Guideline Premium Tested Products

- Guideline Level Premiums and MEC premiums are calculated at 4%
    - 4% sounded conservative in the 1980's
    - Guideline Single is at 6%!
- For most guideline premium tested products with a guaranteed interest less than 4%, the policyowner cannot pay a premium that will guarantee the coverage will stay in force for life without a secondary no-lapse guarantee
    - Policyowners have to rely on nonguaranteed charges and credits to have coverage for life

Low Interest Rates and Section 7702

Impact on Cash Value Accumulation Test Products (Whole Life)

- Whole Life products generally guarantee the premium and the death benefit for the life of the policyowner
  - They also have guaranteed cash values usually calculated using a 4% interest rate
  - Paid-Up additions purchased by dividends are calculated at a rate no lower than 4%
    - May not be collecting enough to pay the claim

- Whole Life premiums are supposed to be calculated using conservative assumptions
  - The difference between the conservative assumptions and actual experience is paid as a dividend
    - Mortality, Expense and Interest
  - As portfolio rates drop, the interest component of the dividend drops making mortality a bigger component of the dividend
  - 2017 CSO reduced the mortality component of the dividend

- Most effective lever is to offset the above risks is raise the premium
  - Essentially increasing the expense component of the premium and the dividend

Are Whole Life Premiums Conservative?

Male 45, $1 Million Face Amount, Premiums Payable to Age 100

Scenario	Premium
Theoretical Premium at 4% and 2017 CSO	$14,413
Theoretical Premium at 2.5% and 2017 CSO	$18,387
MassMutual's Premium	$19,800

How Do You Know If Your WL Premiums Are Conservative or At Least Sufficient?

Tough Question

- How low could your earned rate go and you still collect enough to pay claims (both DB and surrenders)?
    - Similar to the Guaranteed UL example earlier
    - We call that our minimum supportable interest rate
    - If rates don't change, earned rates will drop to new money rates
        - Is your premium sufficient if you are earning today's new money rate for the next 50 years?

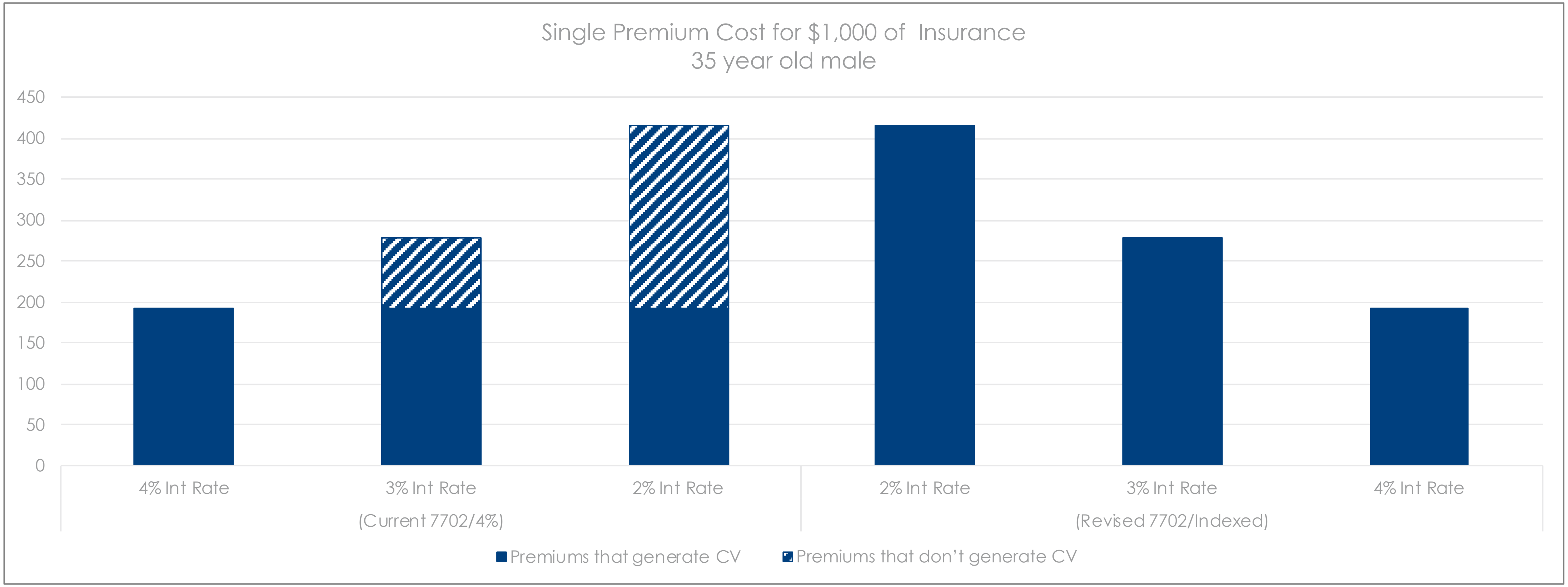
Potential Long Term Solution is a Change to the 4% Rate in 7702

- Guideline Premiums could be increased enough to allow for a premium that would guarantee coverage for life without a secondary no-lapse guarantee

- Whole Life premiums for new business could be increased without the policy becoming a MEC and guaranteed cash values could be increased as a percent of premium

Simplified Single-Pay Whole Life Example

Given the low interest rate environment and the current 7702 minimum rate, the **value available to policyholders of whole life policies is artificially restrained, harming consumers**



Low Interest Rates and New Life Products

- There will continue to be a search for a product that can illustrate a competitive yield.
  - Index UL illustrations will be impacted by AG49A
  - Could VUL make a comeback?
    - Index UL account within a VUL? Does AG49A apply?
  - Registered Index Linked UL?

Questions?